



BlockX Network Agentic Commerce Infrastructure

A purpose-built Layer 1 blockchain enabling AI agents, autonomous systems, and decentralized applications to transact, verify identity, and settle value at machine speed.

01

**Native x402
Protocol**

02

Sovereign Earnings

03

dApp Ecosystem

04

**AI & Agent
Economy**

\$3.5T

Agentic transaction value
forecast by 2031

Juniper Research

1.3B

Projected agentic commerce
users by 2031

Juniper Research

80+

Connected chains via IBC
protocol

Cosmos IBC

BlockX Chain Ltd

An AI-Native Layer 1 Blockchain for the Agentic Economy

blockxnet.com

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Table of Contents

01 Executive Summary	3	02 The Agentic Commerce Revolution	4
03 Market Opportunity & Forecasts	6	04 The Infrastructure Problem	8
05 Native x402: Pillar I	9	06 BlockX Architecture	11
07 Sovereign Earnings: Pillar II	12	08 Ecosystem & dApps: Pillar III	13
09 AI & Agent Economy: Pillar IV	14	10 Agentic Transaction Flows	15
11 Stakeholder Benefits	17	12 Tokenomics & BCX Utility	19
13 Developer Ecosystem	20	14 Regulatory & Compliance	20
15 Competitive Landscape	21	16 Roadmap	22
17 Conclusion	23	A Appendix A: Glossary	24
B Appendix B: References	25		

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Executive Summary

The next era of commerce is autonomous, machine-driven, and real-time. BlockX is the infrastructure layer built for it.

The global economy is undergoing a structural transformation. Artificial intelligence agents are no longer passive tools — they are becoming autonomous economic actors: discovering services, negotiating prices, executing payments, managing subscriptions, procuring compute, and coordinating with other agents — all without human intervention for individual transactions.

This shift from human-initiated commerce to agent-driven commerce creates a fundamental infrastructure gap. Existing blockchains were designed for human users submitting transactions manually. They were not built for the machine-speed, micropayment-density, agent-identity, and programmable payment authorization demands of agentic commerce.

BlockX is the blockchain built specifically for this moment. Built on the Cosmos SDK with Tendermint BFT consensus and Ethermint for EVM compatibility, BlockX introduces four structural advantages:



01

Native x402 Protocol

HTTP 402-native payment infrastructure embedded at the protocol layer — not a smart contract layer — enabling machine-speed settlement (<50ms), eliminating smart-contract gas overhead, and providing the atomic payment/service fulfillment guarantee AI agents require.



02

Sovereign Earnings

Validators earn from four revenue streams simultaneously: block rewards, x402 settlement fees, gateway hosting fees, and priority fees — a projected 3–8× the earning potential of conventional proof-of-stake validators, while stakers and token holders participate in network-generated value.



03

dApp Ecosystem

A dedicated program for incubating, funding, and accelerating agent-native applications — AI marketplaces, compute exchanges, agent-to-agent service platforms, autonomous trading systems, and DePIN integrations — creating network density and compounding utility.



04

AI & Agent Economy

On-chain agent identity (AgentRegistry), capability advertising, reputation scoring, and the ComputeMarket module — enabling AI agents to hold wallets, earn income autonomously, purchase LLM inference, hire sub-agents, and achieve genuine economic self-sufficiency.

\$3.5T

Global agentic transaction value
forecast by 2031

Juniper Research, 2025 [1]

1.3B

Projected agentic commerce users
by 2031

Juniper Research, 2025 [1]

96%

Enterprises expanding AI agent
deployment

Gemini Research Institute, 2025
[7]

BlockX does not compete for the same ground as general-purpose blockchains. It is purpose-built for the machine-to-machine economy, where payment, identity, and compute settlement are native to the protocol itself.

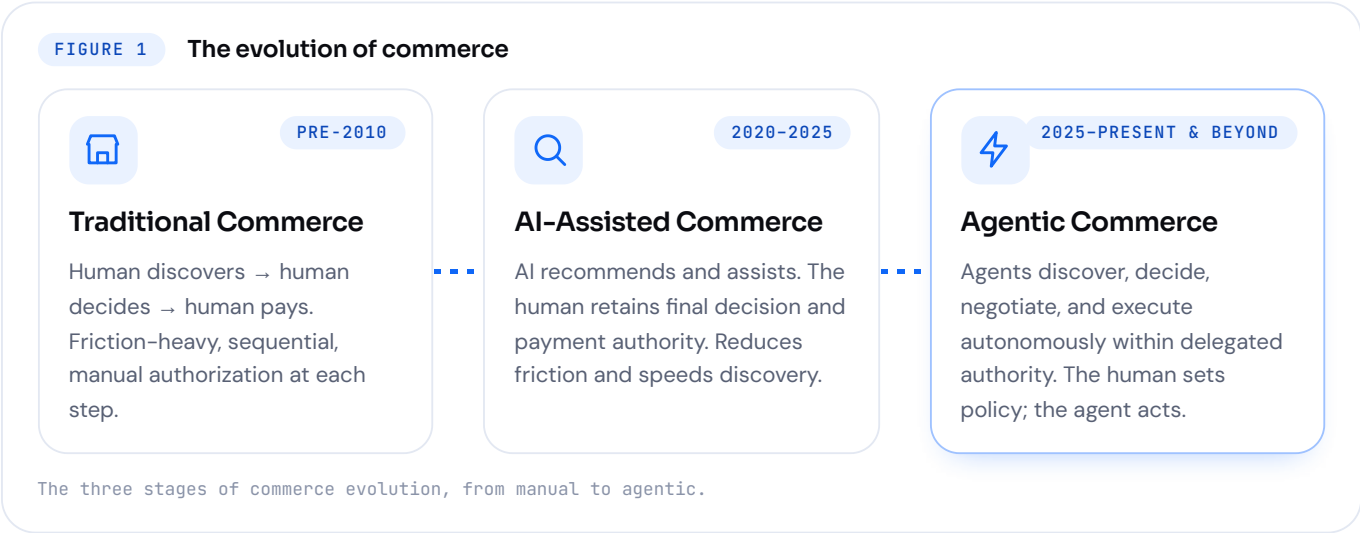
The Agentic Commerce Revolution

Commerce is undergoing its most fundamental transformation since the internet. AI agents are becoming autonomous economic participants.

From Human-Initiated to Agent-Driven Commerce

For three decades, digital commerce followed a consistent pattern: a human discovers a product, evaluates options, makes a decision, and authorizes a payment. The infrastructure — payment processors, e-commerce platforms, banking rails — was designed around this human-in-the-loop model.

That model is changing. AI agents can now perform the entire commercial sequence autonomously: searching for the best provider, comparing prices and terms, negotiating contracts, authorizing payments within pre-set spending limits, managing subscriptions, and triggering renewals — all without human interaction for individual transactions.



What AI Agents Actually Do in Commerce

Agentic commerce encompasses a spectrum of autonomous commercial behaviors, each placing distinct demands on payment infrastructure:

Commerce Type	Example	Infrastructure Need
Consumer-to-Agent	User delegates travel booking to an AI agent with a \$5,000 budget	Programmable spending limits, authorization delegation
Business-to-Agent	Enterprise agent autonomously procures cloud compute and SaaS tools	B2B payment rails, invoice reconciliation, audit trails
Agent-to-Business	AI agent purchases API calls, data feeds, and LLM inference	Micropayment rails, per-call billing, instant settlement
Agent-to-Agent	Orchestrator agent commissions sub-agents for specialized tasks	Machine identity, on-chain settlement, programmable SLAs

Key Agentic Commerce Use Cases



Autonomous Retail

AI agents discovering products, comparing prices across vendors, applying loyalty discounts, and completing checkout within user-defined budgets — entirely without human involvement per purchase.



Compute Procurement

AI systems autonomously sourcing GPU compute from decentralized providers — bidding, selecting, paying per token of inference — without human intervention. The emerging GPU marketplace model.



Travel & Booking

Agents booking flights, hotels, and experiences end-to-end — dynamically repricing, modifying itineraries, and cancelling or rebooking as schedules or prices change, without user friction.



DePIN & Energy Markets

IoT devices and AI systems purchasing bandwidth, storage, energy credits, and connectivity from decentralized physical infrastructure networks with real-time micropayment settlement.



Data & API Marketplaces

AI research agents purchasing real-time market data, proprietary datasets, and third-party API calls on a per-use basis — a fundamentally different model from annual SaaS subscriptions.



Agent-to-Agent Services

Orchestrator agents commissioning specialist sub-agents for translation, coding, legal review, image generation, or research — with on-chain payment, SLA enforcement, and reputation tracking.

The Trust and Identity Problem

Perhaps the most underappreciated infrastructure requirement for agentic commerce is verifiable identity and trust. When an AI agent presents itself to a merchant API claiming to act on behalf of a user with a \$500 daily budget, the merchant needs to verify:

- That the agent is genuinely authorized by the claimed user (**authentication**)
- That the agent has the spending permissions it claims (**authorization**)
- That the agent's reputation is sufficient for the requested service tier (**credentialing**)
- That payments will settle atomically with service delivery (**settlement guarantee**)
- That the transaction is auditable and non-repudiable (**compliance**)

These five requirements cannot be met by Web2 OAuth systems, existing smart contracts, or general-purpose blockchains without significant performance penalties. BlockX's architecture is designed to answer all five natively at the protocol layer.

The Missing Infrastructure Layer

Agentic commerce is emerging now — billions of AI-driven commercial interactions will occur in 2026 alone. What is missing is not AI capability but the programmable settlement infrastructure that makes agentic transactions verifiable, instant, and economically efficient. BlockX fills this gap as the purpose-built foundation layer.

Market Opportunity & Forecasts

Agentic commerce represents one of the largest economic opportunities in the history of the internet. Research-backed data shows the scale of what is emerging.

Research Methodology Note

Market forecasts below are sourced from named third-party research organizations and cited with their original publication details. Different studies define “agentic commerce” differently — some measure transaction value, others transaction volume or user count. We note these distinctions throughout. We do not present speculative projections as established facts, and we clearly distinguish analyst estimates from historical data.

Headline Market Forecasts

\$3.5T

Global agentic transaction value by 2031. Measures global retail + B2B transaction value flowing through AI agents.

Juniper Research, “AI Agents in Digital Commerce: Market Forecasts 2026–2031,” 2025 [1]

1.3B

Global agentic commerce users projected by 2031 (from ~300M in 2026) — roughly 4× growth in five years, one of the fastest adoption curves in commerce history.

Juniper Research, 2025 [1]

\$3–5T

Additional annual global business value from AI agents by 2030. Includes retail orchestration, enterprise procurement, and service automation.

McKinsey Global Institute, June 2023 [2]

\$15T+

Global B2B spend mediated by AI agents by 2028. Gartner also forecasts 90% of B2B buyers engaging AI agents by 2030.

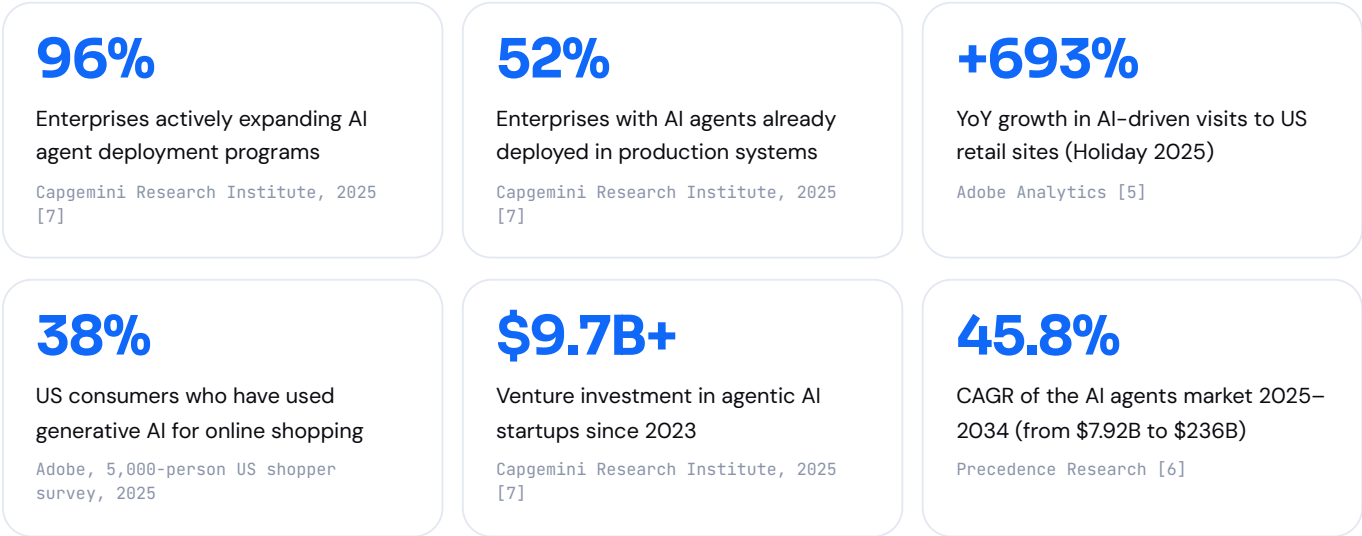
Gartner Research, 2024–2025 [3]

Forecasts at a Glance

The figures below measure different things — transaction value, business value created, B2B spend, and payment-market size — and are therefore **not additive**. They are shown side by side to illustrate that independent analysts converge on the same direction of travel. All are projections; actual results will differ.

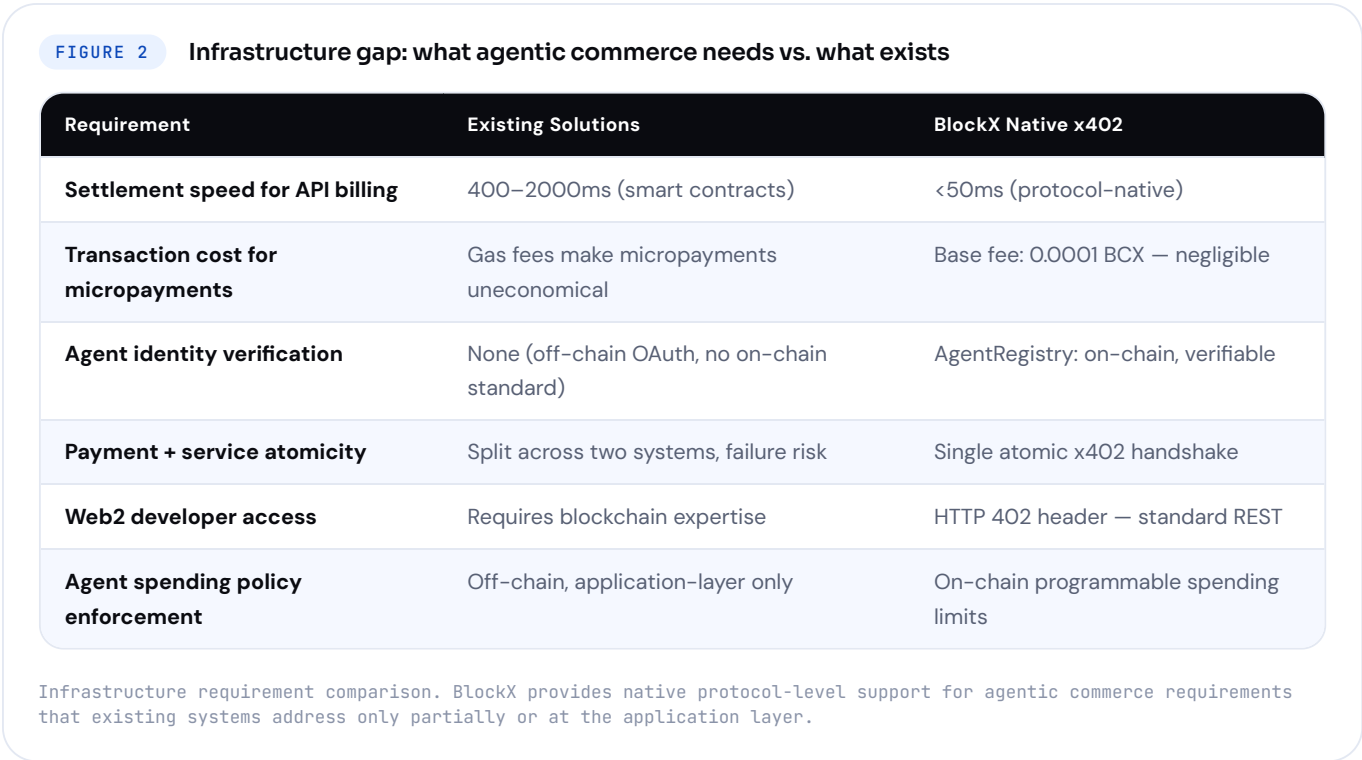
Source	What it measures	Horizon	Forecast
Juniper Research [1]	Agentic transaction value (retail + B2B)	2031	\$3.5T
Juniper Research [1]	Agentic commerce users	2031	1.3B
McKinsey Global Institute [2]	Additional annual business value	2030	\$3–5T
Gartner [3]	B2B spend mediated by AI agents	2028	\$15T+
Galileo Financial Technologies [4]	Agentic payment market	2025 → 2032	\$7B → \$93B (13×)

Consumer & Enterprise Adoption Data



The Payment Infrastructure Gap

Every analyst projection for agentic commerce growth carries an implicit assumption: that adequate payment infrastructure exists to process machine-speed, high-frequency, micropayment-denominated transactions. It does not exist today at scale.



The Infrastructure Opportunity

If even 1% of the projected \$3.5T in agentic transaction value by 2031 flows through BlockX, that represents \$35 billion in settled transaction volume — generating protocol revenue for validators, stakers, and the ecosystem treasury. The infrastructure layer that settles agentic commerce has enormous economic upside for early participants. This is an illustration, not a forecast.

The Infrastructure Problem

Why existing blockchains and payment rails cannot serve the agentic economy — and why purpose-built infrastructure is required.

The Five Failure Modes of Existing Infrastructure

As AI agents begin executing commercial transactions at scale, five fundamental limitations of existing blockchain and payment infrastructure create critical bottlenecks:

1

Settlement Latency: 400–2000ms vs. <50ms Required

When an AI agent requests a service (an API call, compute allocation, data feed), the service provider needs immediate payment confirmation before delivering the resource. Smart contract-based x402 implementations introduce 400–800ms of blockchain overhead plus EVM execution time — making real-time API billing economically and technically impractical for high-frequency agent interactions.

2

Gas Overhead: Up to 500× Transaction Cost Multiplier

EVM-based smart contracts burn gas even for simple payment routing. For a \$0.001 micropayment, gas costs of \$0.05–0.50 make the transaction economically impossible. Agentic commerce requires tens of millions of micropayments per day — an architecture where each transaction carries smart contract overhead is fundamentally uneconomic for the micropayment-heavy AI agent economy.

3

Atomicity Loss: Payment and Delivery Are Not Guaranteed Together

In a smart-contract x402 model, the payment transaction and the service delivery event are separate. The smart contract may confirm payment at block N, but the service provider delivers at block N+2 — creating a window for failures, disputes, and exploits. For autonomous agents operating without human oversight, this atomicity gap is unacceptable. A failed delivery after successful payment has no automatic resolution.

4

Expanded Attack Surface: Smart Contracts Introduce Exploitable Complexity

Every smart contract is a programmable surface that can be exploited. Reentrancy attacks, integer overflows, front-running, and oracle manipulation have collectively drained billions from DeFi protocols. For payment infrastructure processing billions of agent transactions, introducing avoidable smart contract complexity in the critical payment path is an unacceptable security trade-off.

5

Upgrade Fragility: Smart Contracts Are Difficult to Evolve Safely

Payment protocols must evolve as the agentic commerce ecosystem grows — new agent types, new merchant categories, new dispute resolution mechanisms. Smart contract upgrades require proxy patterns, migration logic, and careful governance. Protocol-level upgrades via Cosmos SDK governance are far more controlled, auditable, and backward-compatible than smart contract migrations.

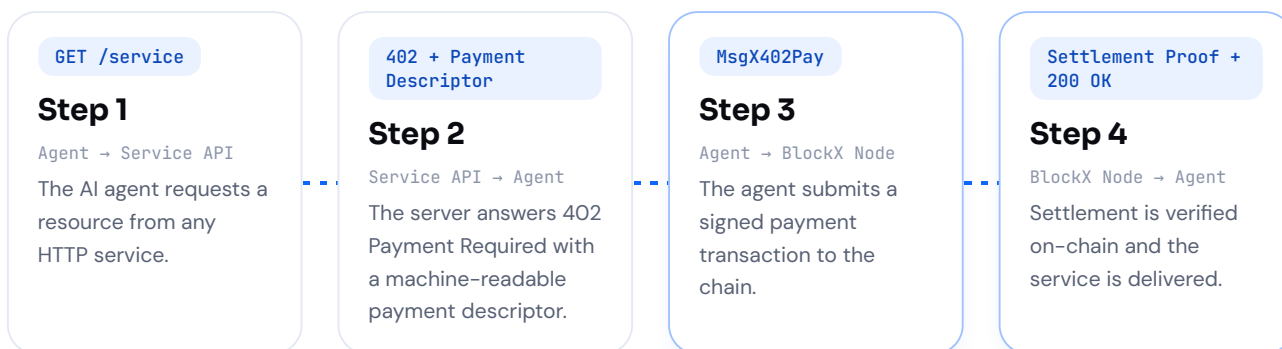
Native x402: The Protocol-Layer Payment Standard

How BlockX embeds machine-payment infrastructure directly at the consensus layer — eliminating the latency, cost, and security problems of smart-contract approaches.

What is x402?

x402 is an extension of the HTTP 402 “Payment Required” status code into a fully functional, machine-readable payment protocol. The 402 status was reserved for future use in the HTTP specifications (now RFC 9110). BlockX implements it as a four-step handshake between any HTTP client (an AI agent) and any HTTP server (a service provider), enabling real-time, atomic payment and service delivery.

FIGURE 3 x402 four-step handshake protocol



Full round-trip: <50ms native • Steps 3-4 atomic on-chain • Service delivery cryptographically guaranteed

The x402 handshake completes in under 50ms at the protocol layer. Steps 3 and 4 are atomic — payment and service delivery are guaranteed together or not at all.

Why Native Beats Smart-Contract x402

Section 4 sets out five failure modes of smart-contract-based x402. The table below shows how a protocol-native implementation answers each.

	Smart-contract x402	BlockX native x402
Settlement latency	400–2000ms	<50ms, protocol-native
Cost per micropayment	Gas of \$0.05–0.50 on a \$0.001 payment	Base fee 0.0001 BCX
Payment + delivery	Separate events (block N vs. N+2) — no automatic resolution on failure	Steps 3 → 4 atomic: guaranteed together or not at all
Attack surface	Reentrancy, front-running, oracle manipulation in the payment path	No smart contract in the critical payment path
Upgrades	Proxy patterns and migration logic	Cosmos SDK on-chain governance

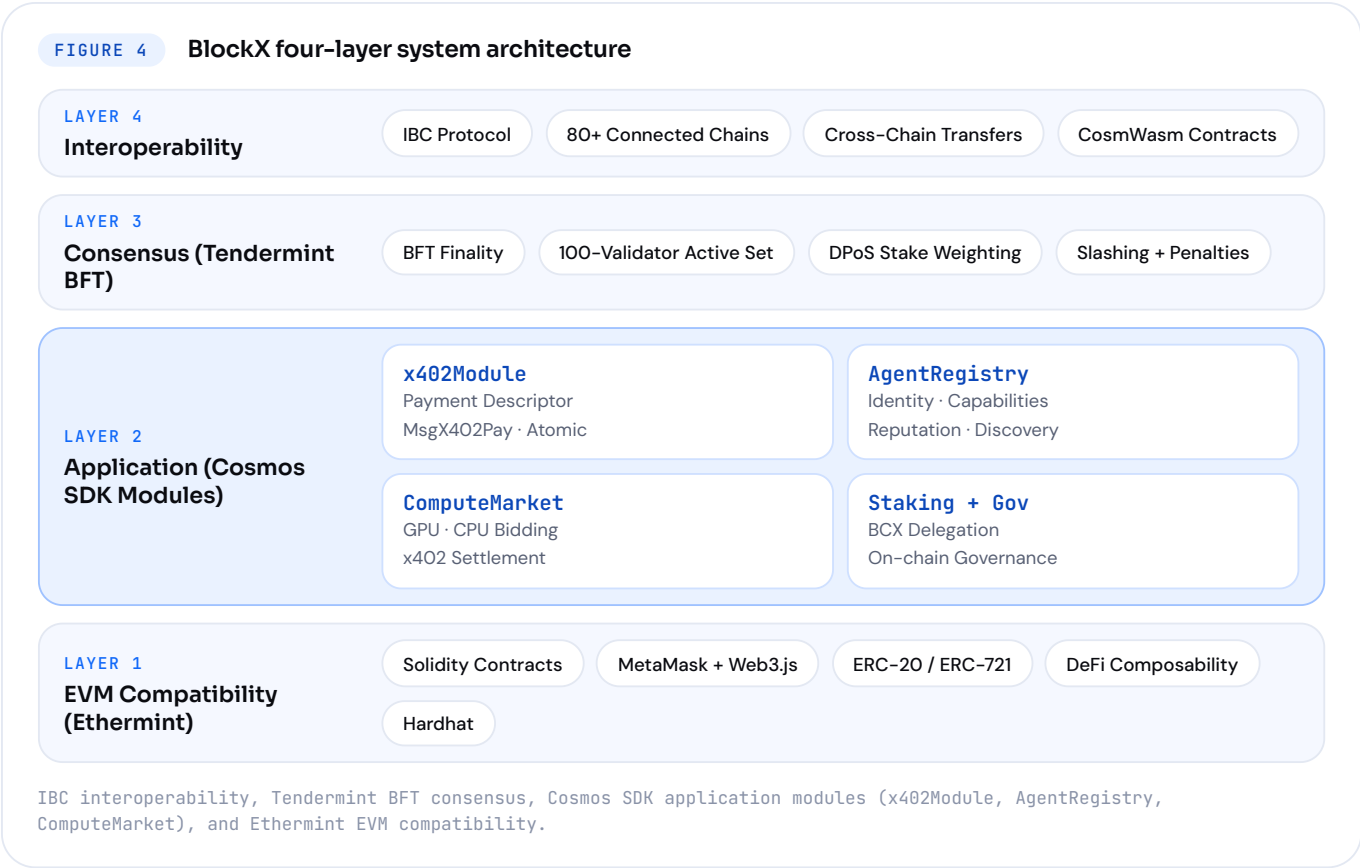
Web2 Compatibility: The Bridge That Changes Everything

BlockX's x402 implementation is accessible to any developer who understands HTTP. A service provider adds three lines to their API response headers. An AI agent includes a payment header in its request. No blockchain SDK required. No wallet management complexity. No gas estimation. The payment happens transparently within the HTTP request-response cycle.

Integration Path	Developer Requirement	Time to Integrate
Web2 REST API (existing)	Add x402 headers to an existing Express/FastAPI endpoint	Hours
New Agent-Native API	Use the BlockX SDK — generates descriptors automatically	Days
Smart Contract dApp	EVM-compatible via Ethernint; Solidity contracts work natively	Days-Weeks
Web2 Frontend + Agents	Standard MetaMask or WalletConnect integration for user wallet	Days

BlockX Architecture

Four integrated layers purpose-built for agentic commerce: interoperability, consensus, application modules, and EVM compatibility.



Core Modules

Module	Purpose	Key Capabilities
x402Module	Native protocol-layer payment processing	Payment descriptor parsing, MsgX402Pay transaction type, atomic settlement verification, fee routing
AgentRegistry	On-chain AI agent identity and discovery	Agent registration, capability declaration, reputation scoring, spending limit enforcement, authorization delegation
ComputeMarket	Decentralized GPU/CPU marketplace	Resource listing, bid/ask matching, compute allocation, x402-settled delivery verification
Staking	Delegated proof-of-stake consensus support	BCX delegation, validator selection, reward distribution, slashing
Governance	On-chain protocol parameter changes	Parameter proposals, community votes, upgrade scheduling, treasury management

Sovereign Earnings: Multi-Stream Revenue for Validators & Stakers

BlockX validators earn from four simultaneous revenue streams — a fundamentally superior economic model compared to single-stream proof-of-stake networks.

The Four Revenue Streams



STREAM 1

Block Rewards

Standard Tendermint BFT block production rewards, distributed proportionally to validators and their delegators. BCX inflation begins at 15% annually, declining to 2% long-run as network transaction fees grow to replace inflationary issuance.



STREAM 2

x402 Settlement Fees

Every x402 payment settled on-chain generates a base fee (0.0001 BCX) plus a proportional settlement fee. As agentic commerce volumes scale to millions of transactions per day, x402 settlement fees become the dominant validator revenue stream — uniquely linked to real commerce activity.



STREAM 3

Gateway Hosting Fees

Validators who operate x402 gateway nodes — providing the bridge between Web2 HTTP APIs and the BlockX chain — earn gateway hosting fees from the services they route. An optional but highly lucrative additional income stream for validators who invest in infrastructure.



STREAM 4

Priority & MEV Fees

Transactions requiring high-priority inclusion (time-sensitive agent payments, ComputeMarket bids) pay priority fees to validators. As the agentic economy grows, time-sensitive settlement becomes commercially valuable, generating meaningful priority fee revenue beyond standard block rewards.

BCX Fee & Reward Distribution

Revenue Type	Validator commission / burn	Delegator share	Community pool
Block Rewards	5% (default, adjustable)	93%	2%
x402 Settlement Fees	5% (default, adjustable)	93%	2%
Transaction Base Fees	20% burned (deflationary)	78%	2%
Gateway Hosting Fees	Validator retains 100%	—	—
Priority Fees	100% to block proposer	—	—

Validator Economics vs. Conventional PoS

Conventional proof-of-stake validators earn a single revenue stream: block rewards from inflationary issuance. BlockX validators earn from block rewards plus x402 settlement fees plus gateway hosting fees plus priority fees — a projected 3–8× revenue multiplier over single-stream PoS networks at equivalent stake levels, as x402 volume grows. Past earnings are not a guarantee of future results.

Ecosystem & dApps

An open platform for developers building the agentic internet.

The BlockX Application Ecosystem

BlockX's EVM compatibility via Ethermint unlocks the world's largest smart-contract developer ecosystem. Every Solidity contract and every Ethereum toolchain — Hardhat, Foundry, Remix, Ethers.js, Wagmi — works on BlockX with zero code changes. Developers bring their existing skills and tooling; BlockX adds native x402 commerce, agent identity, and IBC interoperability that no Ethereum-compatible L1 previously offered.



Agentic Marketplaces

AI-native commerce platforms where agents discover, compare, and purchase goods and services autonomously. Merchant APIs connect via x402; agents settle in BCX or stablecoins; all transactions are on-chain and auditable.



Compute Markets

GPU and CPU resource markets built on ComputeMarket — AI agents bid for compute cycles, model inference, training jobs, and storage. Providers stake BCX to list resources; disputes are resolved on-chain by validators.



DeFi Infrastructure

DEXs, lending protocols, liquidity pools, and yield strategies — all accessible to AI agents via programmatic APIs. Agents can autonomously manage treasury, rebalance portfolios, and execute DeFi strategies within policy guardrails.



Cross-Chain Bridges

IBC-native connectivity to 80+ Cosmos chains plus Ethereum bridges. Agents transacting across ecosystems use BlockX as a settlement hub — converting assets, routing payments, and composing transactions across multiple chains seamlessly.



Agent Frameworks

Native SDKs for LangChain, AutoGen, CrewAI, and OpenAI Assistants. BlockX provides pre-built agent toolkits for x402 payments, AgentRegistry lookup, ComputeMarket bidding, and on-chain governance participation.



DAO Governance

On-chain governance for parameter updates, community treasury allocation, and protocol upgrades. BCX stakers vote proportionally on all governance proposals — infrastructure spending, fee adjustments, module activations, and ecosystem grants.

AI & Agent Economy

Native infrastructure for the machine-to-machine economy.

AgentRegistry: Identity for the Machine Economy

As AI agents proliferate across the internet — purchasing services, managing subscriptions, coordinating workflows — the absence of a verifiable identity layer creates systemic risk. An agent claiming to act on behalf of a user or enterprise must be cryptographically accountable. AgentRegistry is BlockX's on-chain solution: a decentralized registry that issues, verifies, and manages identity records for AI agents operating within the ecosystem.

Agent Registration

Any AI agent — whether a personal assistant, enterprise procurement bot, or autonomous DeFi trader — registers on-chain with:

- **Cryptographic identity** — public key bound to wallet address
- **Permission scope** — authorized action types and spending limits
- **Principal binding** — the human or organization the agent acts for
- **Capability attestations** — verified capabilities and trust levels
- **Revocation status** — real-time on-chain revocability

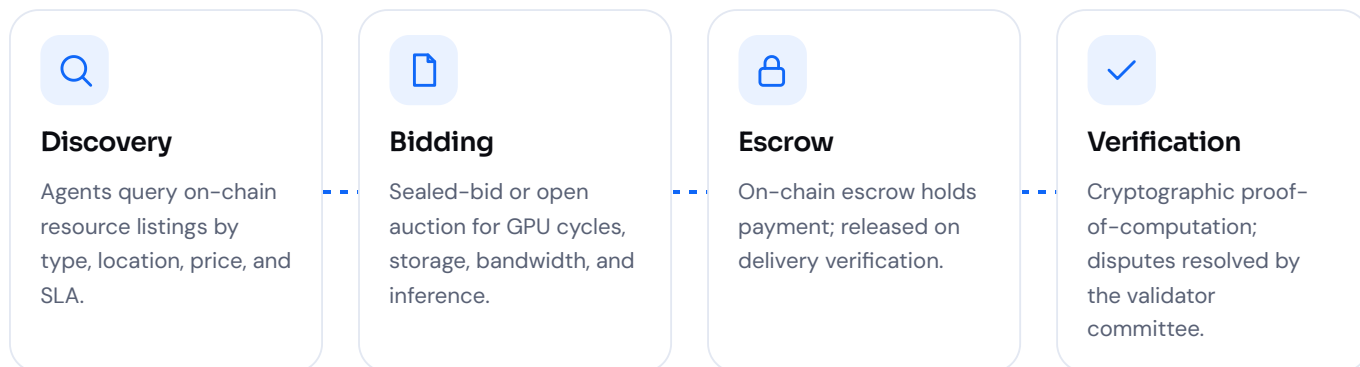
Trust Verification Flow

- 1 Agent presents a signed request with its AgentRegistry DID and action scope.
- 2 Service queries the registry — verifies the signature, checks permissions, confirms the agent is not revoked.
- 3 AgentRegistry enforces spending limits, policy constraints, and action authorization.
- 4 Transaction is executed and recorded — an immutable audit trail with agent DID and principal.

ComputeMarket: Decentralized AI Infrastructure

The explosive demand for AI compute — model inference, training, fine-tuning, and data processing — is driving a structural shift from centralized cloud monopolies to decentralized compute networks. ComputeMarket is BlockX's native module enabling AI agents to autonomously source, bid for, and settle compute resources directly on-chain.

ComputeMarket architecture



Agent Self-Sovereignty

Wallets, income, and autonomy

With on-chain identity, native x402 payments, and ComputeMarket, AI agents on BlockX can hold wallets, earn income autonomously from services they provide, purchase LLM inference, hire sub-agents, and reinvest — achieving genuine economic self-sufficiency within the spending policies their principals define.

SECTION 10

Agentic Transaction Flows

Architecture, payment flows, and ecosystem interactions.

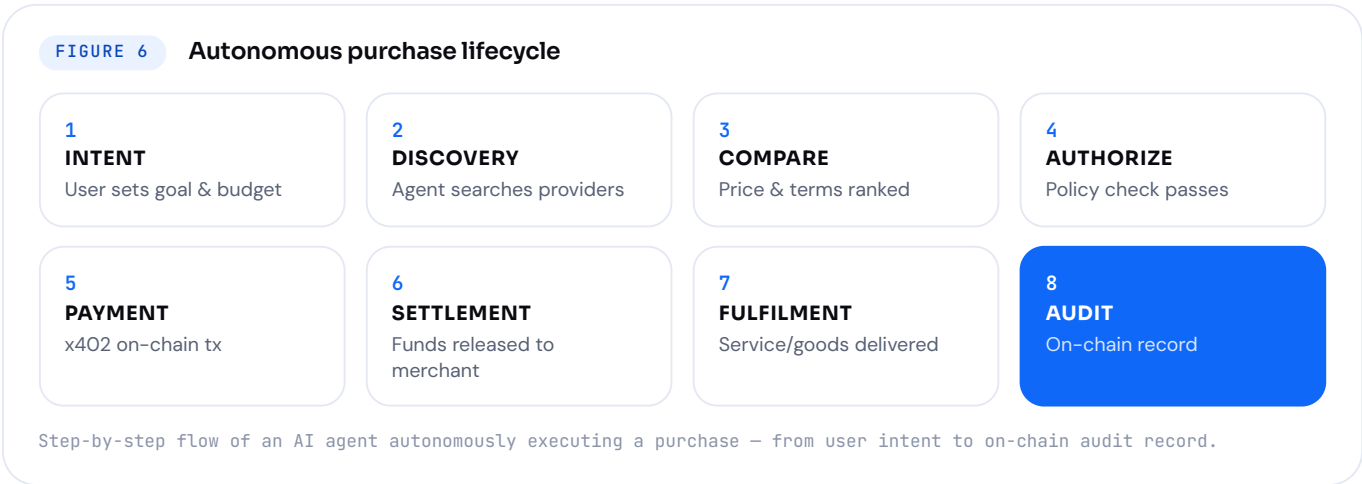
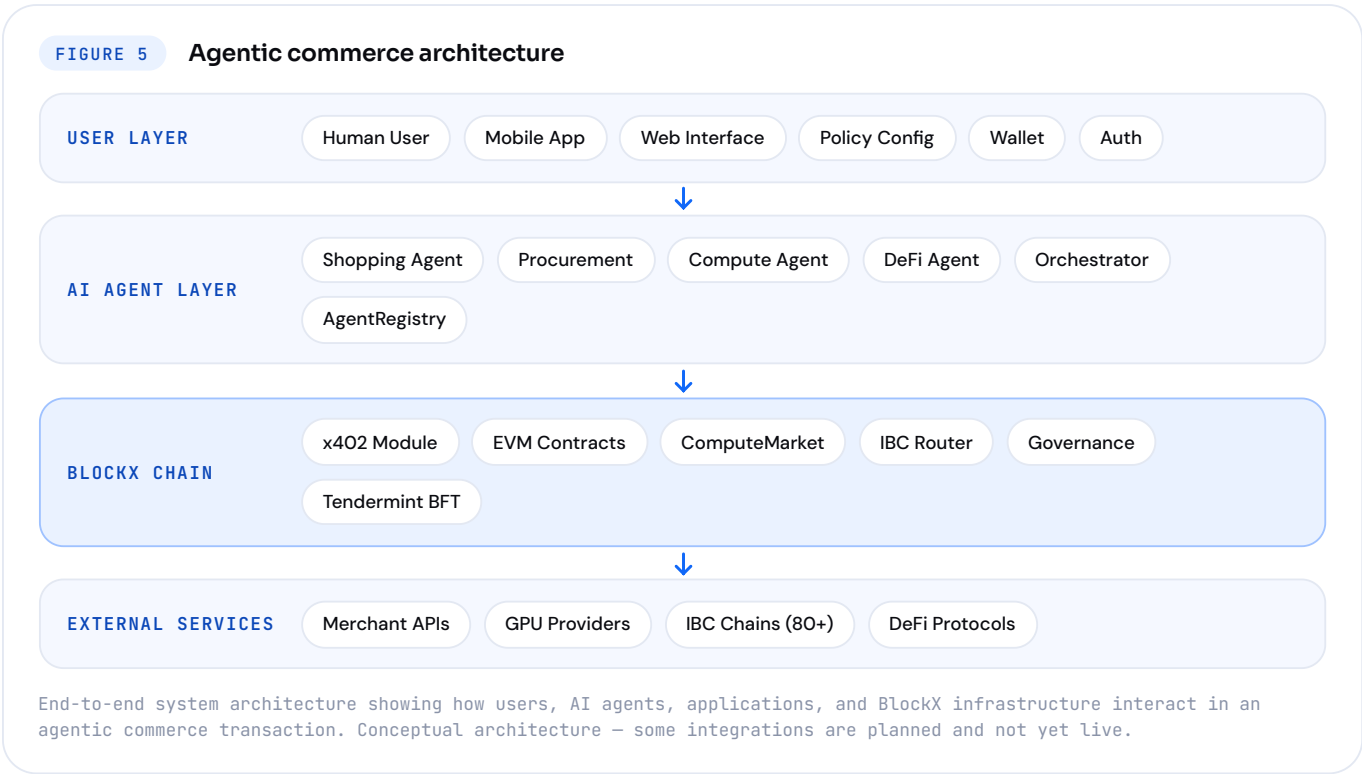
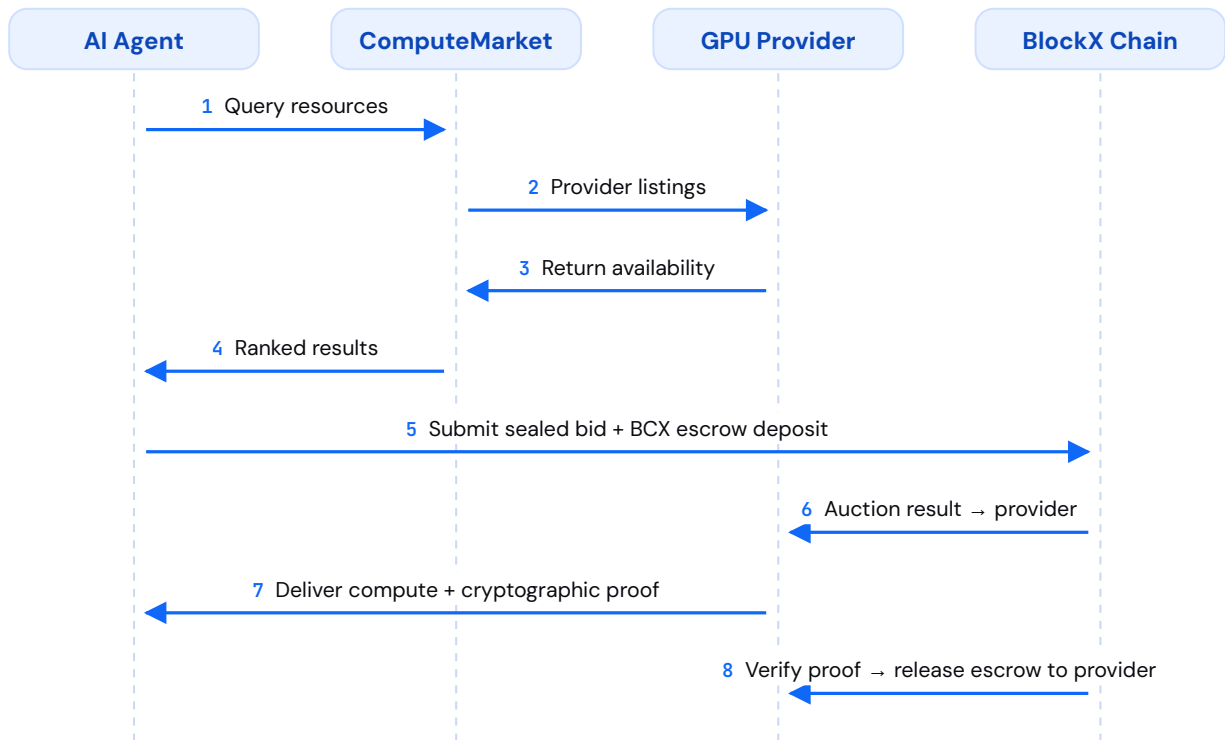
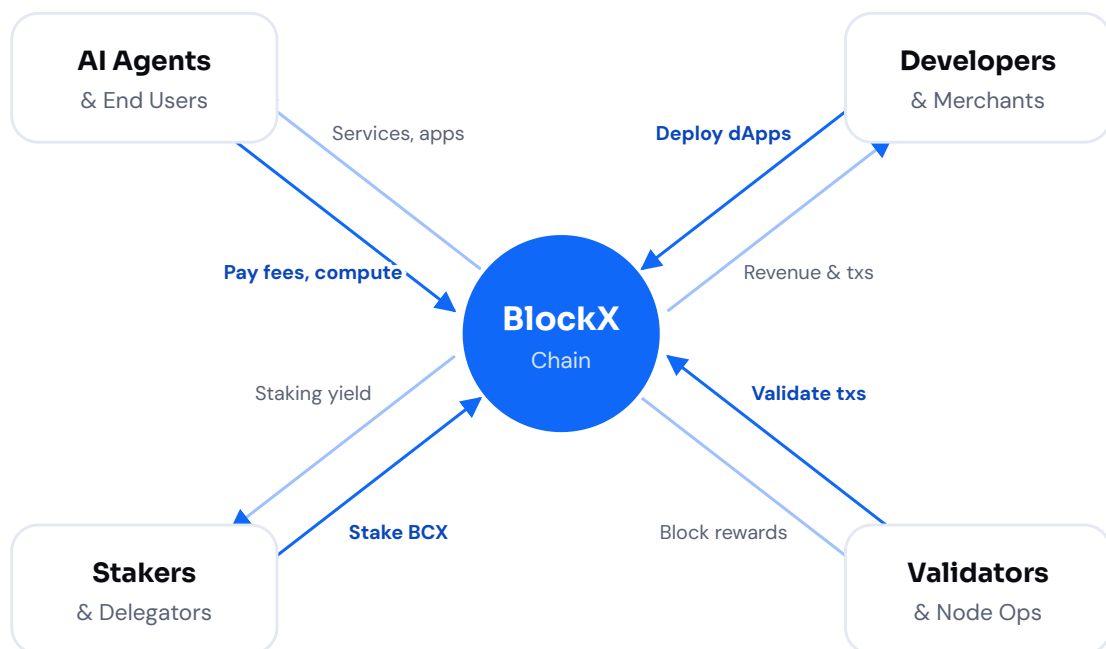


FIGURE 7 Decentralized compute marketplace flow



How an AI agent autonomously sources and pays for GPU compute via the ComputeMarket module. Proposed architecture – production timeline subject to roadmap delivery.

FIGURE 8 Ecosystem stakeholder value map



Interconnected value flows between each participant in the BlockX ecosystem – how each stakeholder contributes and benefits.

Stakeholder Benefits

Economic and ecosystem value for every participant.

Benefits for Stakers, Validators & Node Operators

The people who secure and operate the network share directly in the fees that agentic commerce generates. Rates below are the protocol defaults described in Sections 7 and 12.


STAKE

Stakers & Delegators

- **Share of every fee stream.** Delegate BCX to a validator and receive **93%** of block rewards and x402 settlement fees (after the validator's 5% default commission and 2% to the community pool), and **78%** of transaction base fees.
- **Income tied to real commerce.** As x402 volume grows, settlement fees — not inflation — become the main source of reward.
- **Governance power.** One BCX, one vote on parameters, treasury allocations, and upgrades.
- **Aligned risk.** Staked BCX secures consensus; slashing for malicious behavior or downtime applies to the validator's stake.


SECURE

Validators

- **Four simultaneous revenue streams:** block rewards, x402 settlement fees, gateway hosting fees, and priority fees.
- **Commission income:** a default 5% commission (adjustable) on block rewards and x402 settlement fees from delegated stake.
- **Priority fees:** 100% of priority fees go to the block proposer.
- **Projected 3–8×** the revenue of single-stream PoS validators at equivalent stake, as x402 volume grows. Not a guarantee of future results.


ROUTE

Node Operators & Gateways

- **Gateway hosting fees:** operators of x402 gateway nodes — the bridge between Web2 HTTP APIs and BlockX — retain **100%** of the hosting fees on the services they route.
- **Optional, infrastructure-led income:** an additional stream for validators who invest in gateway infrastructure.
- **Demand-linked:** gateway revenue scales with the agent and merchant traffic the node routes.

Role	Block rewards	x402 settlement fees	Base fees	Gateway fees	Priority fees
Delegator	93%	93%	78%	—	—
Validator	5% commission (adjustable)	5% commission (adjustable)	via stake	100% retained	100% to proposer
Community pool	2%	2%	2%	—	—
Burned	—	—	20%	—	—

Benefits for Users and AI Agents



End Users

- Access to AI-powered marketplaces with autonomous price comparison and optimal purchasing
- Programmable spending limits — define exactly what an agent can buy and spend
- Full transparency: every agent transaction is on-chain and auditable
- Instant revocation — cancel agent permissions in real time
- Cross-chain asset access via IBC — use assets from 80+ connected chains
- Privacy controls — selective disclosure of transaction data using cryptographic proofs



AI Agents

- Verifiable on-chain identity via AgentRegistry — accepted by any integrated merchant
- Native x402 payment capabilities — no payment processor integration required
- Autonomous treasury management within policy-defined budgets
- Direct compute procurement via ComputeMarket — GPU access without human intermediaries
- Agent-to-agent coordination and payment with cryptographic accountability
- Self-sustainability: earn fees from services provided, reinvest autonomously

Benefits for Developers and Merchants



Developers

- Full EVM compatibility — every Ethereum tool and library works on BlockX
- Pre-built agent SDKs for LangChain, AutoGen, CrewAI, OpenAI Assistants
- Access to the x402 payment protocol — monetize APIs with a single HTTP header
- ComputeMarket integration — build services that provision and bill compute autonomously
- Ecosystem grants from the community treasury — funded development of public goods
- Composability with 80+ IBC-connected chains — multi-chain dApps without bridges



Merchants

- Accept AI agent payments natively — reach the growing autonomous buyer segment
- x402 integration in hours — one HTTP header, no payment processor agreement required
- On-chain settlement — receive BCX or stablecoins without chargeback risk
- Verifiable agent identity — know the agent's authorization scope and principal
- Programmable merchant policies — define accepted agent types and spending thresholds
- Access to cross-chain customers paying from assets on any IBC-connected network

Tokenomics & BCX Utility

Economic design, token utility, and incentive mechanisms.

BCX Token Utility

BCX is the native utility token of the BlockX network. It serves multiple functions within the ecosystem, each designed to align incentives between users, developers, validators, and the long-term health of the network. BCX is designed as a protocol utility token, not as an investment instrument (see Section 14).



Gas & Fees

All transactions on BlockX — x402 payments, smart contract calls, ComputeMarket bids — require BCX for fees. Fee burn creates deflationary pressure as network usage grows.



Staking & Security

Validators and delegators stake BCX to participate in Tendermint BFT consensus. Staked BCX secures the network — slashing disincentivizes malicious behavior and downtime.



Governance

BCX stakers vote on protocol parameters, community treasury allocations, module activations, fee adjustments, and other on-chain proposals — one BCX, one vote.



x402 Settlement

BCX is the native settlement asset for x402 commerce transactions. Merchants receive BCX or approved stablecoins; all settlement fees are paid in BCX — creating demand tied to actual commerce activity.



Compute Collateral

GPU and compute providers on ComputeMarket stake BCX as collateral to list resources — aligning provider incentives with reliable delivery and enabling on-chain slashing for SLA violations.



Agent Treasury

AI agents hold BCX in their AgentRegistry wallets as operational treasury — pre-loaded by users to cover approved spending, or earned by agents that provide services to other agents or applications.

Inflation and Fee Mechanics

Inflation Schedule

BlockX uses a declining inflation model designed to bootstrap network security through inflationary block rewards, transitioning to fee-based validator revenue as the network matures (long-run target: 2%).

Phase	Annual Inflation	Primary Revenue Source
Launch	15%	Block rewards (inflationary)
Growth	10%	Block rewards + x402 fees
Maturity	5%	x402 fees + gateway fees

Fee Burn Mechanism

A portion of all base transaction fees is burned — permanently removed from circulation — creating a deflationary counterbalance to inflationary block rewards:

- **20%** of base transaction fees are burned per block
- As commerce volumes grow, the burn rate increases relative to inflation
- Governance can adjust burn rates via on-chain proposal
- The community treasury receives **2%** of all fee types for ecosystem funding

Developer Ecosystem

A comprehensive toolkit for rapid agent-native application development.

Full EVM compatibility means existing Ethereum developers require zero learning curve. Every Solidity contract and Ethereum toolchain — Hardhat, Foundry, Remix, Ethers.js, Wagmi — works on BlockX. Native SDKs and toolkits cover LangChain, AutoGen, CrewAI, and OpenAI Assistants — x402 payments, AgentRegistry lookup, ComputeMarket bidding, and on-chain governance participation. Start at blockxnet.com/developers. Purpose-built additions for the agentic era include:



BlockX SDK

TypeScript/Python SDK for agent-native dApp development — x402 payment integration, AgentRegistry reads/writes, ComputeMarket bidding, wallet management, and IBC cross-chain calls in a unified interface.



BlockX Studio

Visual development environment for designing agent workflows, configuring spending policies, testing x402 payment flows, and deploying smart contracts — reducing time-to-production from weeks to hours.



Explorer & Analytics

Full-featured block explorer with agent activity tracking, x402 payment-flow visualization, and ComputeMarket order visibility.



Testnet & Faucet

Persistent testnet with the complete module suite — x402Module, AgentRegistry, ComputeMarket — plus a faucet for test tokens.

Regulatory & Compliance

Compliance considerations for an agentic economy.

Agentic commerce introduces novel regulatory questions across payments, consumer protection, data privacy, AI liability, and financial services. BlockX acknowledges these complexities and is designed with a compliance-forward architecture, while recognizing that regulatory frameworks are still evolving globally.



Payments & Settlement

The x402 protocol enables value transfer between AI agents and merchants without a traditional payment processor. Depending on jurisdiction, x402 gateway operators may be subject to payment service provider (PSP) or money transmission regulations. BlockX encourages gateway operators to seek appropriate licensing and compliance review in their jurisdictions.



AI Agent Liability

When an AI agent makes a purchase, who is legally responsible? AgentRegistry's principal binding — linking each agent to a verified human or entity — is designed to facilitate accountability. BlockX recommends that developers and deployers of agents maintain clear records of authorization scope and transaction logs for regulatory purposes.



Data Privacy (GDPR/CCPA)

On-chain transaction records are public and immutable — creating tension with right-to-erasure frameworks. BlockX recommends minimizing personal data stored on-chain, using cryptographic commitments or zero-knowledge proofs where sensitive data must be verifiable, and storing personally identifiable information off-chain with on-chain hash anchors only.



Token Classification

BCX is designed as a utility token for network fee payment, staking, governance, and commerce facilitation. Token classification varies by jurisdiction. BlockX does not make representations on the regulatory status of BCX in any jurisdiction. Participants should obtain independent legal advice regarding BCX in their relevant jurisdiction.

SECTION 15

Competitive Landscape

Compliance-ready, agent-native positioning against the alternatives.

Multiple blockchain ecosystems are competing for the emerging agentic commerce opportunity. BlockX differentiates through a combination of capabilities that, in our assessment, no competitor currently offers natively in an integrated form:

Capability	BlockX	Ethereum L2s	Solana	Cosmos Hub
Native x402 Payment Protocol	✓ Native module	Application layer only	Application layer only	Not available
Agent Identity Registry	✓ On-chain module	Smart contract, no standard	No standard	No standard
Native Compute Marketplace	✓ ComputeMarket	Application layer only	Application layer only	Not available
EVM Compatibility	✓ Ethermint	Native	Limited	Not standard
IBC Cross-Chain (80+ chains)	✓ Native IBC	Bridge-dependent	Bridge-dependent	Native IBC
Multi-Stream Validator Revenue	✓ 4 streams	Fees + MEV only	Fees + MEV only	Block rewards only

Roadmap

Milestones on the path to the agentic commerce network.

The following roadmap outlines planned development milestones for the BlockX network. Timelines are indicative and subject to change based on technical progress, community governance decisions, and market conditions. Completion of roadmap items is not guaranteed.

 Phase 1 — Foundation COMPLETED	• Cosmos SDK + Tendermint BFT mainchain launch • IBC connectivity to Cosmos ecosystem • Basic governance module	• Ethernint EVM integration and testnet • BCX token issuance and staking activation • Explorer and developer tooling v1
 Phase 2 — Agentic Modules IN PROGRESS	• x4Q2Module — native HTTP 4Q2 payment protocol • x4Q2 gateway reference implementation • LangChain + AutoGen integration plugins	• AgentRegistry — on-chain agent identity system • Agent SDK (TypeScript/Python) initial release • ComputeMarket v1 specification and testnet
 Phase 3 — Commerce Infrastructure PLANNED	○ ComputeMarket v1 mainnet launch ○ Stablecoin payment support (USDC, USDT) ○ Cross-chain compute settlement via IBC	○ First agentic marketplace partner integrations ○ Merchant onboarding toolkit and documentation ○ BlockX Studio developer environment v1
 Phase 4 — Ecosystem Scale PLANNED · 2026+	○ Zero-knowledge privacy layer for agent transactions ○ Enterprise SDK and compliance toolkit ○ Agentic DAO tooling and governance automation	○ Agent-to-agent M2M payment network ○ DePIN compute integration (Akash, Render, etc.) ○ Cross-chain agent identity federation

Roadmap Disclaimer

All roadmap items represent current development intentions and are not commitments or guarantees of delivery. Technical, operational, regulatory, or resource constraints may cause timelines to change. Governance votes may alter, delay, or cancel planned features. Do not make investment decisions based on anticipated roadmap delivery.

Conclusion

The infrastructure for agentic commerce is being built today.

The Agentic Commerce Era Begins Now

The digital economy is undergoing a structural transition. Commerce — the exchange of value for goods, services, and resources — is shifting from a fundamentally human-initiated activity to one where AI agents act as primary participants. This transition is not gradual; it is accelerating. AI-driven retail visits surged 693% during the 2025 holiday season. Enterprise AI agent adoption reached 52% in production deployment. Research firms project that AI-mediated commerce could represent trillions of dollars in annual transaction value by the early 2030s.

This transformation demands infrastructure that was not designed for human users. It requires machine-readable payment primitives, verifiable agent identities, programmable spending policies, on-chain audit trails, and decentralized compute markets. The HTTP 402 Payment Required status code, dormant for decades, has emerged as the natural primitive for agent-to-agent commerce. The question is not whether agentic commerce will scale — it is which infrastructure will handle it.

BlockX is purpose-built for this moment.

The native integration of x402Module, AgentRegistry, and ComputeMarket — with EVM compatibility, IBC cross-chain connectivity, and multi-stream validator economics — creates a blockchain natively architected for machine-initiated commerce at scale.

x402

Native payment protocol

AgentRegistry

On-chain agent identity

ComputeMarket

Decentralized AI resources

Call to Action



Developers

Build the first generation of agent-native applications on BlockX. Access the SDK, testnet, and developer documentation at blockxnet.com/developers.



Validators & Stakers

Join the network securing the agentic commerce economy. Run a validator node or delegate BCX to earn multi-stream rewards from blockchain infrastructure purpose-built for AI.



Merchants & Partners

Accept AI agent payments and reach the autonomous buyer segment. Integrate x402 in hours — no payment processor agreement required. Contact us at blockxnet.com/partners.

Learn more and join the ecosystem

blockxnet.com

Glossary of Key Terms

Definitions for technical terminology used in this whitepaper.

Agentic Commerce

Commercial transactions initiated, executed, and settled by AI agents acting within user-defined permissions and budgets, without requiring human initiation of individual transactions.

AgentRegistry

A BlockX native chain module providing on-chain decentralized identity, permission management, and principal binding for AI agents. Enables verifiable agent authentication across the ecosystem.

BCX

The native utility token of the BlockX network, used for gas fees, staking, governance, x402 settlement, and ComputeMarket collateral.

Cosmos SDK

A modular blockchain development framework used to build the BlockX chain. Provides core modules for governance, staking, distribution, and IBC integration.

ComputeMarket

A BlockX native module enabling decentralized bidding, procurement, and payment settlement for GPU and CPU compute resources between AI agents and compute providers.

DePIN

Decentralized Physical Infrastructure Networks — blockchain-coordinated networks of physical hardware (compute, storage, wireless, energy) operated by independent participants and tokenized for participation.

EVM (Ethereum Virtual Machine)

The runtime environment for executing Ethereum-compatible smart contracts. BlockX implements EVM compatibility via Ethermint, enabling Solidity developers to deploy existing contracts without modification.

Ethermint

An open-source Cosmos SDK module that adds EVM compatibility to Cosmos-based chains, enabling Ethereum-style transactions, accounts, and smart contract execution.

HTTP 402 / x402 Protocol

A payment protocol built on the HTTP 402 “Payment Required” status code, enabling machine-readable payment requests and programmatic settlement between clients and services without traditional payment intermediaries.

IBC (Inter-Blockchain Communication)

A protocol for authenticated, ordered communication and asset transfer between independent blockchains in the Cosmos ecosystem. BlockX uses IBC to connect with 80+ chains natively.

Machine-to-Machine (M2M) Commerce

Commercial transactions conducted directly between software systems, AI agents, or autonomous programs without human initiation of individual transactions.

Slashing

A penalty mechanism in proof-of-stake blockchains where a validator’s staked tokens are partially confiscated for malicious behavior (e.g., double-signing) or extended downtime.

Tendermint BFT

Byzantine Fault Tolerant consensus algorithm used by BlockX (now maintained as CometBFT). Provides deterministic block finality within one round of voting among the active validator set, tolerating up to one-third of validators acting maliciously.

Validator

A node operator who participates in BlockX’s Tendermint BFT consensus — proposing and voting on blocks, validating transactions, and earning block rewards, settlement fees, and other revenues in exchange for maintaining reliable infrastructure and staked collateral.

x402Module

BlockX’s native Cosmos SDK module implementing the x402 payment protocol — handling the 4-step handshake (402 challenge, payment construction, payment submission, 200 OK response) natively at the chain level.

References & Sources

All cited research, market data, and statistical sources.

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Note on Citations

Research reports cited in this whitepaper are the property of their respective publishers. Paywalled research is cited for transparency; readers are encouraged to access primary sources directly. Statistics from analyst firms may reflect estimates, forecasts, or modeled projections rather than observed market data — where this is the case, it is noted in the relevant section of the whitepaper. BlockX makes no representation about the accuracy of third-party forecasts, which carry inherent uncertainty.